Inventory and Monitoring

National Park Service
U.S. Department of Interior

# Basin Bulletin

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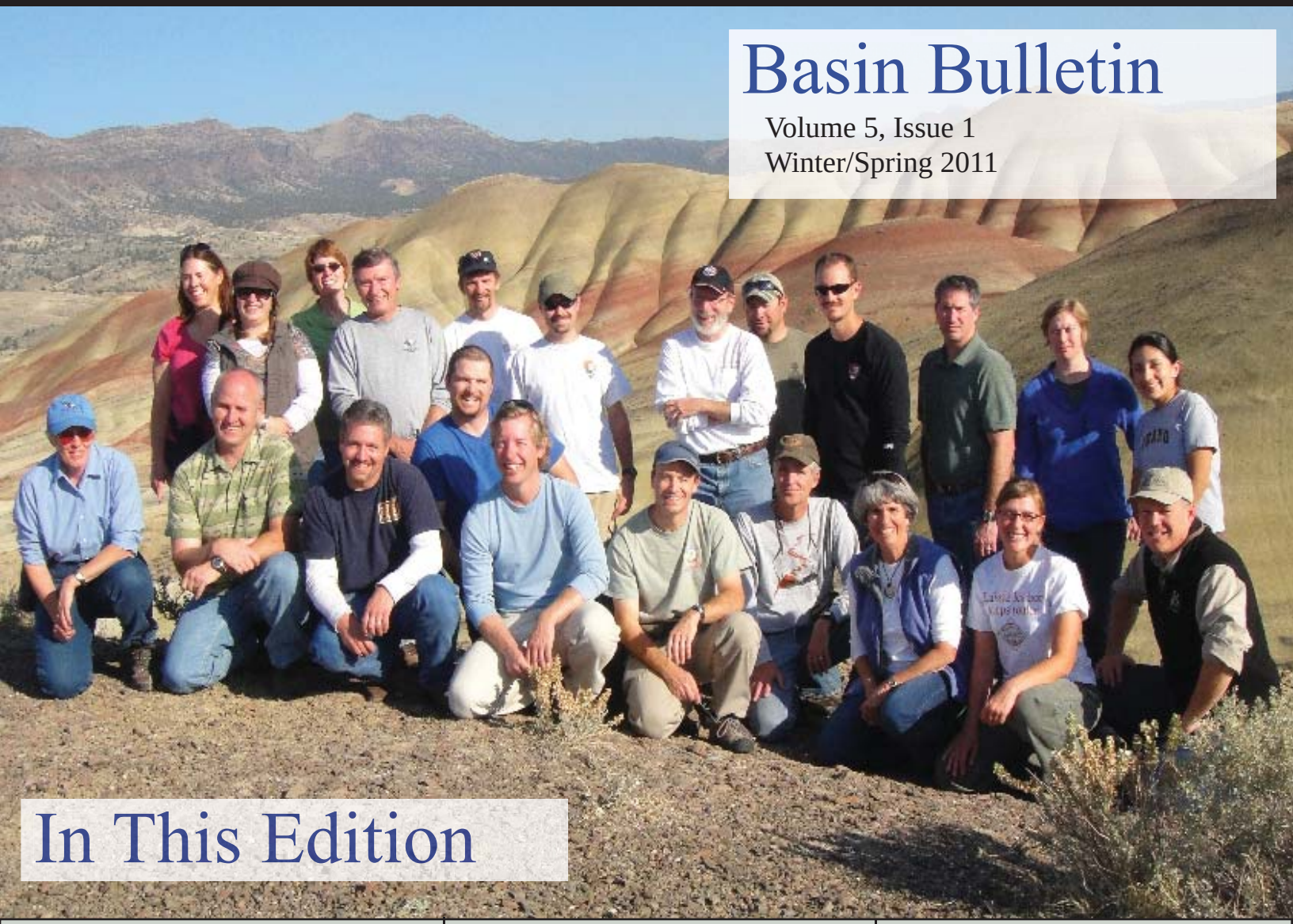

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National Park Service
U.S. Department of Interior
Upper Columbia Basin Nework

The National Park Service has implemented natural resource inventory and monitoring on a servicewide basis to ensure all park units possess the resource information needed for effective, science-based managerial decision-making, and resource protection.

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# The Program Manager's Corner

"We Cannot Direct the Wind but We Can Adjust Our Sails"
~ Gayle LaSalle

January 2011 brings new challenges to the UCBN Inventory & Monitoring Program with travel ceilings being the driving force in the allocation of "boots on the ground" monitoring efforts this year! As most of you are aware, the travel ceiling allocations assigned to the parks and networks will impact the way in which monitoring gets accomplished in your park. I'm working with GSA to lease another vehicle as well as using campgrounds and the UCBN pop-up camper to lower travel costs. I am committed to Job #1, and that is to developing a practical, sustainable monitoring program that provides parks with timely, relevant scientific information (despite the travel ceiling limitation). As the quote above alludes to "I'm planning on adjusting my sails quite frequently this year!"

The 3 year review is scheduled for February 15-16, 2011 (see article on page 4 for more details). Preparations are underway by UCBN staff to "knock the ball out of the park," so to speak. We are looking forward to this exciting event in the life of the I & M Program and will report on the results of the review in our July 2011 newsletter.

The UCBN annual 2010 science meeting, hosted at John Day Fossil Beds National Monument (JODA), was a great success with participation from every park in the Network! Everyone especially enjoyed the wonderful field trip arranged by the JODA staff. I would like to extend my personal thanks to Jim Hammett (Superintendent) and Shirley Hoh (Resource Manager) in assisting the UCBN staff in making all the arrangements.

Participants at the SAC Meeting attended different talks about natural resource monitoring at John Day Fossil Beds National Monument, OR.

We have a busy field season scheduled in 2011. Please refer to the program update on page 3 for dates we plan to be in your park, and to know more about the monitoring that is scheduled. As we close out another year of monitoring, I would like to extend my personal thanks to all the UCBN Superintendents and Science Advisory Committee members for their continued support. I hope you enjoy this newsletter and the highlights of our 2010 accomplishments.

Lisa Garrett - UCBN Program Manager

# UCBN Inventory and Monitoring Program Update - January 2011

| Project | Parks Included | Status |
|---|---|---|
| **Inventories** | **2011** | |
| Lemhi penstemon | BIHO | Inventory data will be collected for Lemhi penstemon at BIHO in June 2011. |
| Vegetation Mapping | CIRO, CRMO, HAFO, JODA, LARO | BIHO – Accuracy assessment 2011<br>CIRO – Final maps in progress<br>CRMO – Final report complete<br>HAFO – Final report complete<br>JODA – Final report complete<br>LARO – Final maps in progress<br>NEPE – Accuracy assessment 2011<br>WHMI - Accuracy assessment 2011 |
| **Monitoring** | | |
| Aspen | CIRO | Protocol approved August 2009.<br>Data collection scheduled for CIRO in July 2011. Reporting scheduled for completion in October 2011. |
| Camas | BIHO, NEPE | Protocol approved October 2007.<br>Data collection scheduled for May 2011 (NEPE) and June 2011 (BIHO). Annual reporting scheduled for completion October 2011. |
| Limber Pine | CRMO | Protocol scheduled for final submission in March 2011. Data collection scheduled for CRMO in June 2011. Reporting scheduled for completion October 2011. |
| Osprey | LARO | Protocol approved November 2010. Osprey helicopter surveys scheduled at LARO in May and July 2011. Reporting scheduled for completion October 2011. |
| Pika | CRMO (CRLA, LABE, LAVO) | Protocol scheduled for final submission in January 2011.<br>Fieldwork scheduled at CRMO (CRLA, LABE, and LAVO) in July 2011. Reporting scheduled for completion November 2011. |
| Riparian Vegetation & Stream Channel Characteristics | NEPE, WHMI | *Rip. Veg.*: Protocol scheduled for final submission in April 2011.<br>*Stream Channel Ch.:* Protocol approved December 2010.<br>Data collection scheduled for NEPE and WHMI in 2011. Reporting scheduled for completion August 2012. |
| Sagebrush-steppe Vegetation Monitoring | JODA, LARO | Final protocol approved in September 2009.<br>Data collection scheduled for JODA and LARO, May-June 2011.<br>Reporting scheduled for completion in October 2011. |
| Water Quality Monitoring | NEPE, WHMI | Protocol approved February 2009.<br>Water chemistry and macroinvertebrate data collection at NEPE and WHMI in 2011. Reporting scheduled for completion November 2011. |
| **Science Communication and Science Support** | | |
| Science Communication Strategy | All UCBN Parks | Implement various components of science communication strategy with UCBN parks. Development of a superintendent's report for BIHO that will be used as a template for other Network parks. |
| Natural Resource Condition Assessment | BIHO, CIRO, CRMO, HAFO | Final reports scheduled for BIHO, CIRO, CRMO, and HAFO in 2011. |

# Is the Upper Columbia Basin I&M Network off to a good start?

**Lisa Garrett** - UCBN Program Manager

The UCBN Inventory and Monitoring (I & M) Program 3-year review is scheduled for February 15-16th in Moscow, Idaho. A review team composed of the National and Pacific West Region I & M Coordinators, along with program managers from the National Capital Region and Central Alaska Networks, will join with the UCBN Board of Directors and Science Advisory Committee in evaluating the UCBN I & M Program. At the review, the operational and administrative aspects of the network's monitoring program will be evaluated, and the basic question "Is the network set up to succeed?" will be discussed.

This is an opportunity for the UCBN Staff, Board of Directors, and Science Advisory Committee members to step back and evaluate the network's initial progress and to make adjustments if needed. The review team will submit a report at the conclusion of the 2-day meeting. Recommendations from this report will be used to strengthen the monitoring program.

We continue to strive to provide parks with timely, relevant scientific information. We look forward to the results of the 3 year review and finding ways to better serve the monitoring needs of the UCBN parks.

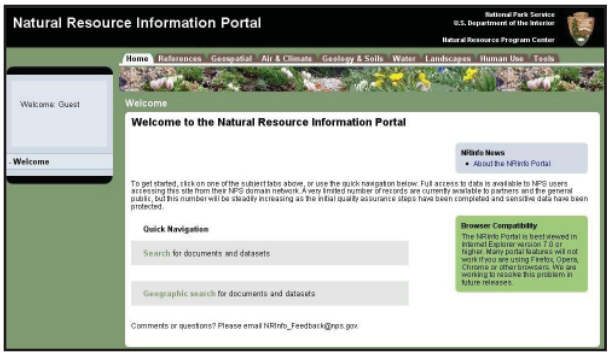
# "One-stop shop" for park information - NRInfo

**Gordon Dicus** - UCBN Data Manager

The Natural Resource Information Portal (or NRInfo) is a web-based application for natural resource data and information associated with National Park Service units. Developed by the Natural Resource Program Center, NRInfo presents a "one-stop shop" for reports and other documents, for maps, and for datasets, both GIS data and tabular databases. The application continues to evolve with new features and search functions – indeed, users are encouraged to submit feedback by email.

Visitors will also find several links to Help files, lists of frequently asked questions, and documents describing NRInfo development goals and status. The NRInfo application (http://nrinfo.nps.gov/Home.mvc) is available to both NPS users and the general public. However, only NPS users can create and edit records.

The NRInfo homepage presents a set of page "tabs" – References, Biology, Geospatial, Air & Climate, Geology & Soils, Water, Landscapes, Human Use, and Tools. From the References page, NPS users can search for existing document and dataset records, or can create a new Reference record. Public users can search for existing document and dataset records.




Screenshot NRInfo Portal

The Biology page is currently visible only to NPS users, and offers search forms for species lists, species observation data, voucher specimen data, and taxonomic information including threatened, endangered, and sensitive species. The Geospatial page allows users to search for documents and datasets by interactively drawing an area-of-interest on a zoom-in, zoom-out map; this page also provides links to download various maps, and to a number of online resources for geospatial and GIS information.

NRInfo provides access to a wealth of data and information, and its full functionality continues to evolve. Be sure to visit often, create records for your important NPS reports and datasets, and submit any feedback you may have.

# Climate Change resources for parks

**Paulina Starkey -** UCBN Science Communication Specialist

The importance of riparian corridors is discussed in the resource brief for John Day Fossil Beds National Monument

Many of our network parks have expressed the need to communicate the effects of climate change to visitors. To emphasize the importance of this matter, and to contribute to the work that park staff does, the Upper Columbia Basin Network is developing a series of resource briefs that are specific to parks, and to critical resources.

These documents are 1 or 2 pages, and they summarize the potential effects of climate change on the resources in each park. These briefs aim to assist park staff in communicating climate change information to staff and the public. In addition, we hope the concise information provided in these briefs can assist in the development of interpretive talks, and/or provide scientific information that can be shared through informal conversations or programs.

Below you will find a list of current and upcoming resource briefs. You can download these briefs from our website at: http://science.nature.nps.gov/im/units/ucbn/reports/.

**READY FOR DISTRIBUTION:**

***Park Specific Briefs:***

Climate Change at Big Hole National Battlefield
Climate Change at Craters of the Moon National Monument and Preserve
Climate Change at John Day Fossil Beds National Monument

***Resource-Specific Briefs:***

Climate Change and Bats
Climate Change and Rare Plants

***Briefs developed by the High Elevation Parks Group (Greater Yellowstone, Rocky Mountain and Upper Columbia Basin Networks):***

Climate Change and Invasive Species
Changing Climates: Past, Present and Future

**UPCOMING:**

***Park Specific Briefs:***

Climate Change at City of Rocks National Reserve
Climate Change at Hagerman Fossil Beds National Monument
Climate Change at Lake Roosevelt National Recreation Area
Climate Change at Nez Perce National Historical Park
Climate Change at Whitman Mission National Historic Site

***Resource-Specific Briefs:***

Climate Change & Aspen
Climate Change & Conifer Encroachment into Shrublands/ Grasslands
Climate Change & Fire
Climate Change & Sagebrush Obligate Birds

Photos (*top to bottom*) of a lemhi penstemon, a yellow-hair indian paintbrush and a snowball pediocactus, that are discussed in the resource brief on Rare Plants.

# Two years of continuous water quality monitoring

**Roger Trick** - Whitman Mission National Historic Site Chief of Resource Management

Water quality monitoring was initiated at Whitman Mission National Historic Site (WHMI) immediately following the completion of a restoration project on Doan Creek in 2006. The goal of the restoration project at Doan Creek is to restore a population of steelhead trout (*Oncorhynchus mykiss*) that historically used this stream. The restoration project focused on placing meanders back into the stream and re-vegetating the riparian zone.

As water started flowing through the new Doan Creek, an intern from Whitman College helped me take water quality measurements in the new stream. We monitored the same parameters (temperature, dissolved oxygen, pH, specific conductance and turbidity), now used with the UCBN, but we were doing it on a much less professional level, without a peer reviewed protocol other than following the directions enclosed with the monitoring instrument. Since then, water quality has been monitored using UCBN protocols, first in Mill Creek (2008-2009) and recently in Doan Creek (2010).

In 2009, WHMI purchased a new Hydrolab, and with help and advice from Eric Starkey, UCBN Aquatic Biologist, I installed the new datasonde in Mill Creek. Using the UCBN Hydrolab and the water quality protocol provided the next level of accuracy and scientific credibility that the park needed. The park's goal is to make the restored stream as attractive as possible to fish. Using lots of help from volunteers and biologists, the park staff planted trees, shrubs, and forbs along the streambanks to shade the water in summer. So far we have attracted deer, hawks, moose, and mink to visit the riparian area. The park even has one resident beaver on Doan Creek, complete with beaver lodge and dam.

In 2010, park management with the help of Whitman College interns, followed the UCBN water quality monitoring protocol for collecting data from the Hydrolab in Doan Creek. Subsequent analysis of 2010 data by Eric Starkey, supported anecdotal observations by park staff that Doan Creek was a relatively, healthy stream with clear, cool water.

Analysis of the monitoring data from Doan Creek will assist park managers in determining if additional measures could be implemented to improve fish habitat. Additional questions of interest include: What is the trend in stream temperature in Doan Creek? Should the park consider monitoring nitrates and/or fecal coliform, as housing developments expand into the Doan Creek watershed?

An additional benefit for the park in conducting water quality monitoring is that students from elementary grades through college can assist in the work. While the park and UCBN operate the Hydrolab through a joint agreement, the water quality monitoring program can be used as a teaching tool for environmental studies programs in local schools and colleges. Using water quality monitoring instruments enables students and others to be better educated about water quality and healthy streams. These same students can also watch for the day when steelhead return to Doan Creek.

Roger Trick, calibrating the water quality monitoring instrument by Mill Creek, WHMI.

Hydrolab at Mill Creek, WHMI. during water quality monitoring in 2008.

# Experience on the talus slopes monitoring pikas

**Jeff Murphy** - Crater Lake National Park, Wildlife Technician

Jeff Murphy collecting pika monitoring data at Wizard Island, CRLA.

Hi readers! My name is Jeff Murphy and this season I had the opportunity to perform field work for the "Pikas in Peril" monitoring project. The work began in early August, after most of the snow had melted from the talus slopes where the pikas make their home. That's when Mackenzie Jeffress, Research Associate for the Upper Columbia Basin Network, and her crew, arrived at the park and gave the other technicians and me an overview of the project and trained us how to conduct pika surveys.

Surveys involved hiking to a site, laying out a survey plot, collecting habitat and environmental data within the plot, and then performing an intensive search for signs of occupancy. I determined site occupancy by the presence of fresh hay or scat, hearing a pika call, or observing a pika within the plot. My favorite sign of presence was of course, the visual observation of a pika within the plot. At a few sites, we deployed temperature loggers to monitor any changes in temperature over time. Then, when the first round of surveys was done, we got to do it all over again!

A month after the original surveys, I revisited the sites to see if there were any differences in detection as pikas prepared for the coming winter months. In addition to the regular surveys, we spent a day on Wizard Island to search for sign of pika. We didn't find any fresh sign, only old scat and hay, but we plan on searching again next summer. Though the work was challenging at times, I had a blast working on the project this summer. It was great to be a part of a multi-park, multi-network project like this one. Working with a species of concern like the pika is also great experience in my pursuit of a career in conservation biology. The summer of 2010 marked my third season as a Wildlife Technician at Crater Lake National Park, and I plan on returning to the park in 2011. I look forward to working with Mackenzie, UCBN folks, and of course pikas again!


1. **Hot off the press! new publications:** The UCBN recently published an article in the Journal of Mammalogy on pikas in CRMO, and an article in the Journal of Vegetation Science on trend analysis for the sagebrush steppe monitoring protocol. Here are the citations: - Rodhouse, T. J., E. A. Beever, L. K. Garrett, K. M. Irvine, M. R. Jeffress, M. Munts, and C. Ray. 2010. Distribution of American pikas in a low-elevation lava landscape: Conservation implications from the range periphery. Journal of Mammalogy, 91(5):1287–1299.

   - Irvine, K.M., and T.J. Rodhouse. 2010. Power analysis for trend in ordinal cover classes: Implications for long-term vegetation monitoring. Journal of Vegetation Science, 21(6):1152-1161.
2. **Participate in our upcoming biannual quiz:** Pay close attention to your email in March, when we will be sending our first quiz of this year. You can test your knowledge of network park facts and could win a prize in the mail!
3. **Save the date! Network 3-year Review:** The UCBN 3-year review meeting will be held at the University of Idaho in Moscow, Feb. 15-16, 2011.
4. **Update on Monitoring Protocols:** Protocols for monitoring osprey and stream channel characteristics were recently approved (Nov. and Dec. 2010).
5. **Cool stuff:** A couple of videos that include two of the network parks have recently become available. Take a look:
   - Pika Monitoring at Craters of the Moon National Monument and Preserve
   - Release of Big Horn Sheep at John Day Fossil Beds National Monument

   Available at: http://science.nature.nps.gov/im/units/ucbn/mon_videos.cfm

   YouTube links: http://www.youtube.com/watch?v=I5KcjBHOyF0

   http://www.youtube.com/watch?v=TGcoAIN-2_0

# "Featured Creature"

Learn about the Clark's nutcracker and then find the answers to the word puzzle questions!

Photo by Robert Mutch

Clark's Nutcracker (*Nucifraga Columbiana*) is a medium-size grey bird with black and white wings and tail feathers. It is widely distributed in the American Northwest and it is commonly found in coniferous forests, between 3,000 and 12,900 feet.

These birds feed on seeds from 5-needle high-elevation pines, particularly on whitebark (*Pinus albicaulis*) and limber pines (*Pinus flexilis*). After agilely picking pine cones, these birds feed on the large seeds these pines produce, and store excess seeds in the ground. Consequently, seeds that are not retrieved are able to germinate and grow, making seed caching by this bird very important to these pines' seed dispersal.

Unfortunately, a disease that is affecting high elevation white pines is spreading across the United States. Blister rust (*Cronartium ribicola*) is a fungus that affects pines by causing branch dieback, vulnerability to pine beetle attack, and mortality. Additionally, blister rust affects cone production, which reduces the availability of Clark's nutcracker primary source of food, and in turn, it hinders 5-needle pine regeneration.


www.bna.birds.cornell.edu

Clark's nutcracker distribution map.

NPS Photo

Limber pine (*Pinus flexilis*) infected by blister rust (*Cronartium ribicola*) at CRMO.

Photo by Eric Starkey

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## Clark's nutcracker Word Puzzle

- What is the scientific name of the Clark's nutcracker?
- What do Clark's nutcrackers love to eat?
- What is the name of the disease that is affecting high-elevation white pines in the US?
- Find one of our network parks where this bird species can be found.
- Find two of the pine species, whose seeds are dispersed by Clark's nutcrackers.



Answers: Nucifraga columbiana, pine seeds, blister rust, Craters of the Moon NM, Limber pine and whitebark pine.